

ORIGINAL ARTICLES

Scientific and General

A PERMANENT EMERGENCY MEDICAL SERVICE FOR DISASTER RELIEF†*

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THE War has brought sharply to focus the need for a permanent organization for disaster relief in civilian communities. Since the beginning of the war several disasters have been handled by Civilian Defense Organizations and have thus proved this need. The adoption of a permanent organization, therefore, based on the present Civilian Defense set-up, seems desirable. (See references.)

If some thought and preparation are given to preparedness, there cannot be the six hours of chaos and confusion that have been known to exist in the past after a disaster.

This issue of the CALIFORNIA AND WESTERN MEDICINE deals with the Emergency Medical Service. Rescue work is a separately-trained and operated division, that must function in close coöperation with the Medical Division. Housing,

† **Explanatory Note.** Concerning Four Symposia to appear in issues of October, November, December and January.

In every war there is a tendency to neglect the health, the safety, and the nutrition of those who are behind the lines. Famine and pestilence are facts of war and can be crucial factors in victory or defeat. Our present war is so large and is lasting so long that we will need to be especially alert well beyond the cessation of hostilities.

With the desire to promote optimal health in our civilian population four symposia have been compiled. These have been gathered as follows: (1) Symposium to appear in October issue, on Disaster Relief, by Henry Gibbons, III of San Francisco; (2) Symposium in November issue, on Communicable Diseases, by Edward B. Shaw, of San Francisco; (3) Symposium in December issue, on Nutritional Problems, by Dwight L. Wilbur, of San Francisco; (4) Symposium in January issue, on Industrial Medicine, by Rutherford T. Johnstone, of Los Angeles.

A special committee, appointed for this project by Council Chairman Gilman, consisting of Howard F. West, J. Homer Woolsey, and Fletcher B. Taylor, chairman, wishes to express sincere gratitude for the work done by each contributor.

* One of several papers in a Symposium on "Emergency Medical Service in Wartime." Papers collected by Henry Gibbons, III.

† From the Office of the Chief of the Emergency Medical Service for San Francisco Civilian War Council.

food, clothing, etc., are problems handled by the Emergency Welfare Services and the Red Cross Disaster Relief Service.

Successful emergency medical work depends on three important things:

1. The persence of a Mobile Medical Team at an incident.
2. Prompt and adequate ambulance service.
3. Immediately available medical care at the hospital or casualty station.

First-aid procedures, in the field of communities with hospital service available, are restricted to stopping hemorrhage, immobilization of fractures by simple and quick splinting, prevention of shock, and relief of pain with opiates if necessary. First-aid stations are usually not desirable, since adequate treatment can be given only in hospitals. Rapid transportation of all injured to the hospital is the best procedure. Casualty stations can be operated in isolated districts remote from a hospital, or near a hospital in order to handle the minor injured and prevent overcrowding of hospital facilities. They are staffed with doctors and nurses.

The Emergency Medical Service for Civilian Defense is made up of doctors, nurses, dentists, and auxiliary personnel, each with a specific assignment. It is now opportune to plan to continue an active roster of doctors and nurses, and such auxiliary personnel as may be needed for each unit. All professional people can easily continue this specific assignment to a hospital or casualty station accessible to them, with the understanding that they are to report there in case of emergency.

There are three important sections comprising the Emergency Medical Service:—

The Field Casualty Section.

The Hospital Section.

The Nursing Section.

FIELD CASUALTY SECTION

The Field Casualty Section consists of:

I, a Field Casualty Service (with its Mobile Medical Teams and equipment, organized at hospitals), stretcher teams, casualty stations, ambulances and other transport;

II, a Casualty Information Service; and

III, an Emergency Mortuary Service.

This section also maintains a source of supply of blood plasma for the field.

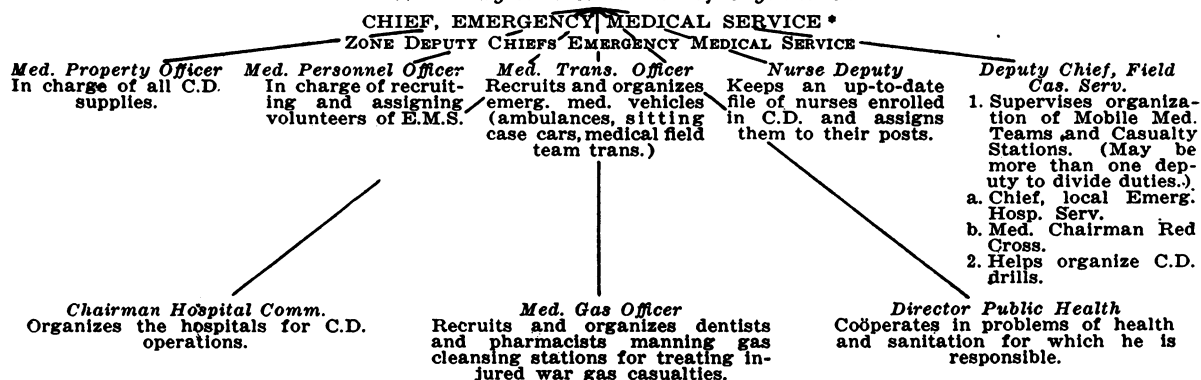
HOSPITAL SECTION

Arrangements with general hospitals for the maximum expansion of their normal facilities for the reception and care of casualties in an emergency should be maintained. Hospital traffic must be controlled with the help of the regular or auxiliary police.

NURSING SECTION

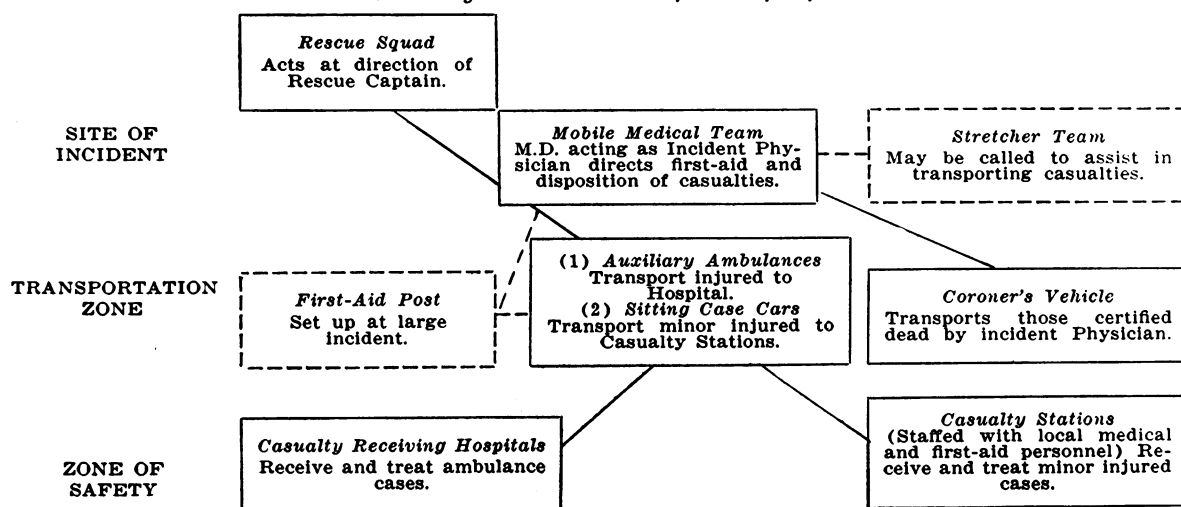
The Nursing Section is responsible for nursing participation in the Emergency Medical Service. Nurses are listed and classified in the local communities, so that in an emergency they may be mobilized for immediate duty. This work is done

TABLE 1.—Diagram No. 1: Plan of Organization



* May be 1. Separate official, 2. Local Health Officer.

TABLE 2.—Diagram No. 2: Plan of Care of Injured



by the Nurse Deputy. This section also coöperates with the Public Health Department and the Red Cross in the organization of a Home-Nursing Program that provides for organized home-nursing care after an emergency.

The Health Officer should develop plans for prompt and appropriate action during and after any disaster to insure:

1. Maintenance of safe water, food, and milk supplies.
2. Sanitary disposal of sewerage and putrescible wastes.
3. Sanitation at mass-feeding centers, rest centers, casualty stations, and other temporary facilities for emergencies; and
4. Control of communicable diseases.

Since large-scale enemy action is only a slight possibility on this coast now, the maintenance of emergency control centers and the drilling of their entire personnel is no longer practicable. Each department in regular civic functions can handle its own problems in its particular manner. There should be provided, however, an information center with proper emergency communications where the chiefs of each service of the locality meet in an emergency to direct and co-

ordinate activities. It is still recommended that drills of the Emergency Medical Service be held on the average of every six months for the Duration. The other articles in this issue outline standard emergency procedures that can be adopted in order to simplify and make more effective operations in the field and in the hospitals.

The articles presented in this symposium may serve as a guide for standardizing emergency medical operations. Each state medical, nursing, and hospital organization can better perpetuate the Emergency Medical Service by asking all communities to maintain up-to-date rosters of professional people assigned to this service, and also seeing that they continue to maintain emergency equipment and facilities in all hospitals.

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REFERENCES

- CIVILIAN DEFENSE PUBLICATIONS. (These publications are available from your State Chief of Emergency Medical Service.)
 Regulation No. 3. United States Citizens Defense Corps (Revised August, 1943). O.C.D. Publication.
 The Medical Division of the U. S. Office of Civilian Defense. O.C.D. Publication 5005-1, June, 1943.
 Medical Division Bulletin No. 1: Emergency Med. Service for C.D.
 Medical Division Bulletin No. 2: Equipment and Operation of Emergency Medical Field Units.

Medical Division Bulletin No. 3: Protection of Hospitals.
 Medical Division Bulletin No. 4: Central Control and Administration of Emergency Medical Service.
 Medical Division Bulletin No. 5: Emergency Mortuary Service.
 Medical Division Bulletin No. 6: Nursing Participation in Emergency Medical Service.
 Medical Division Bulletin No. 7: Emergency Medical Service in Industrial Plants.
 Sanitary Engineering Bulletin No. 1: Protection and Maintenance of Public Water Supplies Under War Conditions.
 Sanitary Engineering Bulletin No. 2: Municipal Sanitation Under War Conditions.
 Handbook of First Aid.
 Protection Against Gas. (In collaboration with Protection Division, O.C.D.)
 First Aid in the Prevention and Treatment of Chemical Casualties.
 Field Care and Transportation of the Injured.
 Technical Manual for the Rescue Service.
 Syllabus of Course of Instruction for Nurses' Aides.
 Guide for Training of Volunteer Nurses' Aides.
 Instructor's Outline for First Aid Course for Civilian Defense.
 Advanced First Aid for Civilian Defense.
 Treatment of Burns and Prevention of Wound Infections.
 A Technical Manual on the Preservation and Transfusion of Whole Human Blood.
 A Technical Manual on Citrated Human Blood Plasma.
 Clinical Recognition and Treatment of Shock, Blast Syndrome, and Crush Syndrome.
 Volunteers in Health, Medical Care, and Nursing.
 The Role of Dentists in Civilian Defense, April 16, 1942.
 Gas-Cleansing Stations. O.C.D. Operations Letter No. 124, April 8, 1943.
 How to Protect Yourself Against War Gas. O.C.D. Operations Letter No. 128, May 15, 1943.
 The Health Department in Civilian Protection. O.C.D. Operations Letter No. 131, June 12, 1943.
 Mobilization of the Emergency Medical Service in Air Raid Alerts. O.C.D. Circular Medical Series No. 33, September 13, 1943.
 The Role of the Emergency Medical Service in Gas Defense. W. P. Dearing, M.D. O.C.D. Publication 2217.

Other Publications

Emergency Medical Service in an Air Raid (Official Rules and Suggestions for the Citizens of S. F.). October, 1942.
 Home-Nursing Manual. A publication of the San Francisco Nursing Council for War Service, November, 1942.
 Bulletin of the American College of Surgeons, Volume 28, No. 2, June, 1943, War issue.
 A Manual of Medical and Surgical Emergencies. J. C. Geiger, M.D. (Published by J. W. Stacey, San Francisco.)

BURNS*

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IT is now recognized that the treatment of a severe burn should be aimed at the prevention of its two major complications, shock and infection. It is a great deal easier to prevent or treat these complications early than to relieve them after they have developed. Many types of local therapy have merit, and two of these will be discussed later. All are agreed, however, on the therapy necessary for the prevention and treatment of shock in a severe burn. The mortality which previously occurred early in severe burns has been greatly reduced by the use of adequate transfusions of plasma. It must be remembered that, though it is not always possible to carry out ideal therapy, care can and should be taken not to institute therapy which might be harmful. Few surgical conditions necessitate the wide knowledge and meticulous care that a severe burn does.

EMERGENCY CARE AND FIRST-AID TREATMENT

All patients with severe burns must receive im-

mediate treatment for shock. They should be placed in a supine position and given an injection of morphine. At least one-half grain is necessary to alleviate the severe pain, and to help combat the shock which accompanies an extensive burn. If it is anticipated that the patient will be immediately transported to a hospital, no local therapy should be carried out except to prevent the burn from being contaminated during the period of transportation. If possible, sterile gauze should be applied to the burned area and, if this is not available, clean linen should be used and the patient covered with a blanket or some article of clothing to keep him warm.

If it appears that it will be impossible to hospitalize the patient in less than two hours, local treatment may be carried out as follows, if the materials are available. No effort is made to remove more clothing than is necessary to expose the burned surfaces. Rings should be promptly removed from the fingers of burned hands. Burned surfaces may be covered with a sterile boric ointment, petrolatum or 5 per cent sulfathiazol water-soluble jelly spread on a layer or two of fine mesh gauze (44). Large gauze dressings or sterile cotton waste is placed over these dressings and the entire dressing bandaged firmly in place. If the burn is on an extremity, a splint will simplify its handling and offer a more comfortable means of transportation. Ointments or jellies containing tannic acid are no longer recommended for the first aid treatment of burns, and should not be used. A certain proportion of burns become infected by organisms present in the skin about the burn. A still larger proportion become infected by organisms later introduced into the burned area. For this reason every effort should be made to minimize secondary contamination. With these facts in mind it is important that the patient and all attendants handling burn cases should be capped and masked if it is possible. If it is impossible to cover the burned area with sterile gauze, all efforts should be made to keep from contaminating the burned area. The injection of undiluted plasma intravenously should be instituted as soon as possible.

DEFINITIVE TREATMENT

The definitive treatment of a severe burn should be carried out as soon as the patient reaches a location where the facilities are adequate, and the patient will remain sufficiently long to receive the treatment. The first consideration, of course, is the treatment of shock. Additional morphine is usually required and the transfusion of plasma should immediately be instituted. Since every severely-burned patient will require plasma, its administration should be started immediately without waiting for laboratory reports. Those who are responsible for the treatment of extensive burns should be familiar with the Berkow method of estimating the extent of cutaneous lesions. After figuring the percentage of the body which has been burned, it is possible to estimate roughly the amount of plasma required for the patient during the first 24 hours. If the

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